

Ultrafast Electron Dynamics at Metal-/Organic Interfaces

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Ultrafast surface spectroscopies, particularly time-resolved two-photon photoemission (2PPE), can provide detailed information about the microscopic mechanisms of electron transfer processes at interfaces between organic molecular layers and metals. I will report about recent studies of 3,4,9,10-perylene tetracarboxylic acid dianhydride (PTCDA) and 1,4,5,8-naphthalene tetracarboxylic acid dianhydride (NTCDA) grown epitaxially on Ag(111). Both systems display an unoccupied dispersing state between the metallic Fermi level and the lowest unoccupied molecular orbitals. This state is shown to be a genuine interface state. It has a strong overlap with the metal and plays an important role in the carrier transport across the interface.